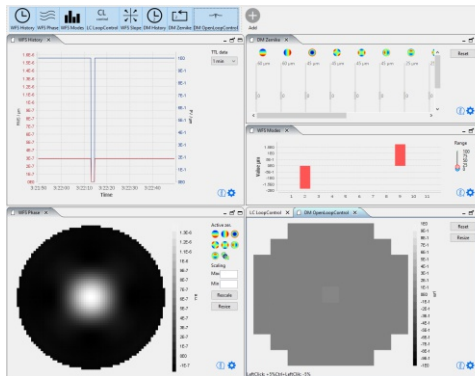


ALPAO AO KIT are adaptive optics systems composed of an **ALPAO DM**, an **ALPAO SH-WFS** and **ALPAO** software **ACE** or **ACE fast** Real-Time Computer, all designed to perfectly work together. Thus, it offers a system level test. Over 100 kit configurations are possible.



## Key features

### KIT FOR EVERY APPLICATIONS

Athmospheric correction, optthalmology, microscopy...

### CUSTOMIZE YOUR OWN KIT

Select your DM, WFS and software: over more than 100 choices

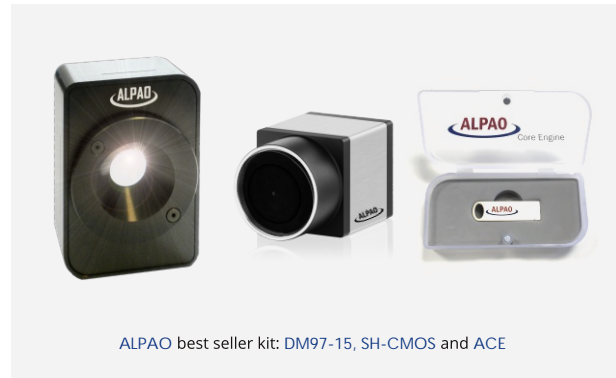
### COST EFFICIENT

Get a tested system and the telescope lenses for the price of the components

## KIT FOR EVERY APPLICATION

ALPAO kits allow to choose from over 100 possible configurations. Pick up the right one depending on the performances you need: complexity and speed of your aberrations, spectral range and number of photons available.

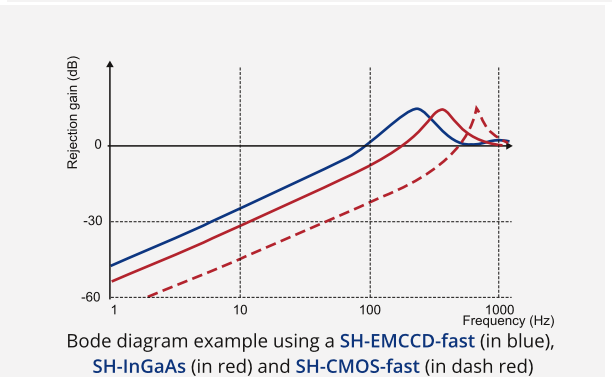
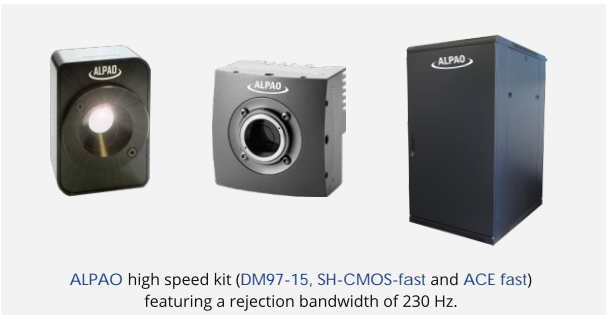
ALPAO DM97-15 associated with SH-CMOS WFS and ACE is an excellent cost-efficient kit. It performs corrections of up to ~60 Zernike modes at a frequency of tens of Hertz. Thanks to the flexibility of ACE, you will easily implement your kit into your experiment and correct your aberrations.



## SPEED & SENSITIVITY PERFORMANCES

Choose the correct ALPAO kit depending on your application:

- the shape of your aberrations drives the number of actuators,
- the temporal fluctuation of your aberrations and the number of photons available drive the WFS and RTC choice.



		SENSITIVITY			
DM	WFS	Photons for SNR=1 (ph./fr/subaperture)	Rejection bandwidth with ACE (Hz)	Rejection bandwidth ACE fast (Hz)	Spectral range
DM820 or lower	SH-CMOS	100	3	5	VIS
DM468 or lower	SH-CMOS-fast	1000	35	230	VIS
DM468 or lower	SH-EMCCD	3	19	25	VIS
DM69	SH-EMCCD-fast	3	35	90	VIS
DM97			35	50	
DM292		4	35	100	
DM468			35	100	
DM69	SH-InGaAs	1500	35	140	NIR
DM97			35	100	
DM292		300	35	160	
DM468			35	140	

## MORE INFORMATION

- ▶ [www.alpao.com](http://www.alpao.com)
- ▶ [contact@alpao.fr](mailto:contact@alpao.fr)
- ▶ +33 476 890 965

Ask for advanced simulations!

ALPAO Adaptive Optics System (AOS) are tailor-made systems for your applications and needs. They are based on more than twelve years of experience in AO systems for many applications.



## Key features

### READY-TO-USE

All components included and assembled

### CUSTOMER-FOCUSED

Dedicated to your application and based on years of experience

### FAST

Close the AO loop at up to 5kHz with a rejection bandwidth up to 230Hz

## PLUG AND PLAY AO SYSTEM FOR MICROSCOPY

Correction of the optical aberrations (from sample, index mismatch and microscope) becomes straight forward with the **AOS- $\mu$**  (ALPAO plug-and-play AO system for microscopy). A typical system includes:

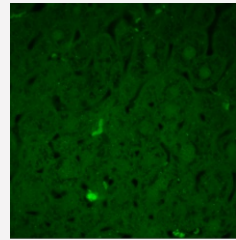
- **ALPAO DM97-15**
- user friendly, optimisation software
- an embedded pupil imaging camera
- an optional optical bypass.

**AOS- $\mu$**  are available for most applications. It includes:

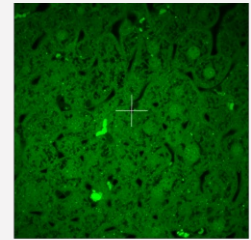
- Multi-photon microscopy
- Confocal microscopy
- PALM and STORM
- Fluorescence microscopy

Based on a robust standard design, **ALPAO** is able to provide a system perfectly matching to your microscope at a very competitive price.

Contact us for one-to-one guidance and technical support.



Without AO System



With AO System

Example in microscopy: confocal images in depth of the tissues, transparent liver sample of mouse.  
Credit: ConfoBright and Laurence Dubreil

## STATE-OF-THE-ART SYSTEM FOR LGS ATMOSPHERIC COMPENSATION

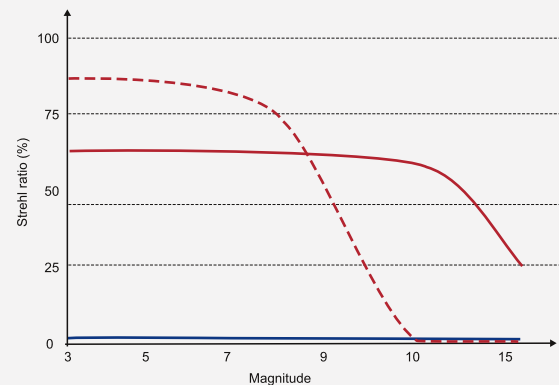
**ALPAO** can provide state-of-the-art AO systems for atmospheric turbulence compensation. Natural Guide Star (NGS) or Laser Guide Star (LGS) configuration can be provided.

Such systems typically include:

- **ALPAO DM**
- **ALPAO fast WFS**
- **ALPAO ACE fast** (RTC)
- a calibration unit
- a Tip-Tilt Mirror (TTM)
- an object Tip-Tilt sensor
- a Focus Stage Control (FCS) for the LGS
- a LGS-TT
- the science camera or instrument
- a storage device

Typical applications are:

- Astronomy
- Debris and satellite imaging
- Free Space Optical (FSO) communication
- Laser precompensation of atmospheric aberrations



Example of Strehl ratio without AO (in blue), with LGS (in red) and with NGS (in dash red)  
With  $D/r_0 = 8$  and a **DM292**, **ACE fast**, **SH-EMCCD-fast-292**

## MORE INFORMATION

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